

# Contributions to Mineralogy and Petrology

---

Volume 110 1992

*Executive Editors:* **T.L. Grove J. Hoefs**

*Editorial Board*

- R. Binns North Ryde, Australia  
I.S.E. Carmichael Berkeley, California  
J. Ferry Baltimore, Maryland  
A.W. Hofmann Mainz, F.R.G.  
I. Parsons Edinburgh, Scotland  
P.J. Patchett Tucson, Arizona  
W. Schreyer Bochum-Querenburg, F.R.G.  
J.L.R. Touret Amsterdam, The Netherlands  
V. Trommsdorff Zürich, Switzerland



**Springer International**

## **Contributions to Mineralogy and Petrology**

Founded in 1947 by O.H. Erdmannsdörffer. Volume 1 (1949) edited by O.H. Erdmannsdörffer as "Heidelberger Beiträge zur Mineralogie und Petrographie". Continued from Volume 6 (1957) as "Beiträge zur Mineralogie und Petrographie", edited by C.W. Correns. From Volume 12 (1966) to Volume 40 (1973) published as "Contributions to Mineralogy and Petrology/Beiträge zur Mineralogie und Petrologie", edited by C.W. Correns and F.J. Turner. Beginning with Volume 41 (1973) "Contributions to Mineralogy and Petrology". As of Volume 43 (1974) edited by C.W. Correns and I.S.E. Carmichael. As of Volume 74 (1980) edited by I.S.E. Carmichael and J. Hoefs. As of Volume 105 (1990) edited by T.L. Grove and J. Hoefs.

---

Submission of a manuscript implies: that the work described has not been published before (except in the form of an abstract or as part of a published lecture, review, or thesis); that it is not under consideration for publication elsewhere; that its publication has been approved by all coauthors, if any, as well as by the responsible authorities at the institute where the work has been carried out; that, if and when the manuscript is accepted for publication, the authors agree to automatic transfer of the copyright to the publisher and that the manuscript will not be published elsewhere in any language without the consent of the copyright holders.

All articles published in this journal are protected by copyright, which covers the exclusive rights to reproduce and distribute the article (e.g., as offprints), as well as all translation rights. No material published in this journal may be reproduced photographically or stored on microfilm, in electronic data bases, video disks, etc., without first obtaining written permission from the publisher.

The use of general descriptive names, trade names, trademarks, etc., in this publication, even if not specifically identified, does not imply that these names are not protected by the relevant laws and regulations.

While the advice and information in this journal is believed to be true and accurate at the date of its going to press, neither the authors, the editors, nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

*Special regulations for photocopies in the USA:* Photocopies may be made for personal or in-house use beyond the limitations stipulated under Section 107 or 108 of U.S. Copyright Law, provided a fee is paid. This fee is US \$ 0.20 per page per copy, plus a basic fee of US \$ 2.00 per article. All fees should be paid to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA, stating the ISSN 0010-7999, the volume, and the first and last page numbers of each article copied. The copyright owner's consent does not include copying for general distribution, promotion, new works, or resale. In these cases, specific written permission must first be obtained from the publisher.

Printers: Universitätsdruckerei H. Stürtz AG Würzburg

© Springer-Verlag GmbH & Co. KG Berlin Heidelberg 1992  
Printed in Germany

## Contents of volume 110

No. 1: pp 1–138 issued in March 1992  
No. 2/3: pp 139–410 issued in April 1992  
No. 4: pp 411–538 issued in May 1992

- Anderson AT → Lu F 113–120  
Bauer GR → Fodor RV 442–462  
Bhattacharya A → Mukhopadhyay A 346–354  
Blanckenburg F von, Früh-Green G, Diethelm K, Stille P: Nd-, Sr-, O-isotopic and chemical evidence for a two-stage contamination history of mantle magma in the Central-Alpine Bergell intrusion 33–45  
Blichert-Toft J, Lesher CE, Rosing MT: Selectively contaminated magmas of the Tertiary East Greenland macrodike complex 154–172  
Champness PE → Worden RH 329–345  
Clague DA → Fodor RV 442–462  
Cohen AS → Porcelli DR 528–538  
Coish RA, Sinton CW: Geochemistry of mafic dikes in the Adirondack mountains: implications for late Proterozoic continental rifting 500–514  
Cosca MA, Essene EJ, Kunk MJ, Sutter JF: Differential unroofing within the Central Metasedimentary Belt of the Grenville Orogen: constraints from  $^{40}\text{Ar}/^{39}\text{Ar}$  thermochronology 211–225  
Dallmeyer RD, Takasu A:  $^{40}\text{Ar}/^{39}\text{Ar}$  ages of detrital muscovite and whole-rock slate/phyllite, Narragansett Basin, RI-MA, USA: implications for rejuvenation during very low-grade metamorphism 515–527  
Davis AM → Lu F 113–120  
deLong SE → Nielsen RL 355–369  
Denison JR → Nabelek PI 173–191  
Dick HJB → le Roex AP 253–268  
Dickin AP → Jolly WT 411–428  
Diethelm K → Blanckenburg F von 33–45  
Droop GTR → Worden RH 329–345  
Duffield WA, Ruiz J: Compositional gradients in large reservoirs of silicic magma as evidenced by ignimbrites versus Taylor Creek Rhyolite lava domes 192–210  
Dunkley PN → Shimizu H 242–252  
Dymoke P, Sandiford M: Phase relationships in Buchan facies series pelitic assemblages: calculations with application to andalusite-staurolite parageneses in the Mount Lofty Ranges, South Australia 121–132  
Eggins SM: Petrogenesis of Hawaiian tholeiites: 1, phase equilibria constraints 387–397  
Eggins SM: Petrogenesis of Hawaiian tholeiites: 2, aspects of dynamic melt segregation 398–410  
Essene EJ → Cosca MA 211–225  
Fallick AE → Jenkin GRT 269–288  
Farber D → Young ED 68–86  
Fodor RV, Frey FA, Bauer GR, Clague DA: Ages, rare-earth element enrichment, and petrogenesis of tholeiitic and alkalic basalts from Kahoolawe Island, Hawaii 442–462  
Frey FA → Fodor RV 442–462  
Frost CD → Singer BS 87–112  
Früh-Green G → Blanckenburg F von 33–45  
Galer SJG → Porcelli DR 528–538  
Gallahan WE → Nielsen RL 488–499  
Griffin WL, Gurney JJ, Ryan CG: Variations in trapping temperatures and trace elements in peridotite-suite inclusions from African diamonds: evidence for two inclusion suites, and implications for lithosphere stratigraphy 1–15  
Gurney JJ → Griffin WL 1–15  
Harris NBW, Inger S: Trace element modelling of pelite-derived granites 46–56  
Heaman LM, Machado N: Timing and origin of midcontinent rift alkaline magmatism, North America: evidence from the Coldwell Complex 289–303  
Inger S → Harris NBW 46–56  
Jenkin GRT, Fallick AE, Leake BE: A stable isotope study of retrograde alteration in SW Connemara, Ireland 269–288  
Jolly WT, Dickin AP, Wu T-W: Geochemical stratigraphy of the Huronian continental volcanics at Thessalon, Ontario: contributions of two-stage crustal fusion 411–428  
Kawata Y → Shimizu H 242–252  
Kunk MJ → Cosca MA 211–225  
Lange RA, Navrotzky A: Heat capacities of  $\text{Fe}_2\text{O}_3$ -bearing silicate liquids 311–320  
Lawless PJ → Viljoen KS 133–138  
Leake BE → Jenkin GRT 269–288  
le Roex AP, Dick HJB, Watkins RT: Petrogenesis of anomalous K-enriched MORB from the Southwest Indian Ridge: 11°53'E to 14°38'E 253–268  
Lesher CE → Blichert-Toft J 154–172  
Lira R, Ripley EM: Hydrothermal alteration and REE-Th mineralization at the Rodeo de Los Molles deposit, Las Chacras batholith, central Argentina 370–386  
Lu F, Anderson AT, Davis AM: Melt inclusions and crystal-liquid separation in rhyolitic magma of the Bishop Tuff 113–120  
Machado N → Heaman LM 289–303  
Masuda A → Shimizu H 242–252  
Mattey DP → Porcelli DR 528–538  
McDonough WF, Stosch H-G, Ware NG: Distribution of titanium and the rare earth elements between peridotitic minerals 321–328  
Mohanty L → Mukhopadhyay A 346–354  
Mukhopadhyay A, Bhattacharya A, Mohanty L: Geobarometers involving clinopyroxene, garnet, plagioclase, ilmenite, rutile, sphene and quartz: estimation of pressure in quartz-absent assemblages 346–354  
Myers JD → Singer BS 87–112  
Nabelek PI, Russ-Nabelek C, Denison JR: The generation and crystallization conditions of the Proterozoic Harney Peak Leucogranite, Black Hills, South Dakota, USA: Petrologic and geochemical constraints 173–191  
Navrotzky A → Lange RA 311–320  
Newberger F → Nielsen RL 488–499  
Nielsen RL, deLong SE: A numerical approach to boundary layer fractionation: application to differentiation in natural magma systems 355–369  
Nielsen RL, Gallahan WE, Newberger F: Experimentally determined mineral-melt partition coefficients for Sc, Y and REE for olivine, orthopyroxene, pigeonite, magnetite and ilmenite 488–499  
Okrusch M → Schmidicke E 226–241  
O'Nions RK → Porcelli DR 528–538  
Otter ML → Viljoen KS 133–138  
Pidgeon RT: Recrystallisation of oscillatory zoned zircon: some geochronological and petrological implications 463–472  
Poli G → Tommasini S 16–32  
Porcelli DR, O'Nions RK, Galer SJG, Cohen AS, Mattey DP: Isotopic relationship of volatile and lithophile trace elements in continental ultramafic xenoliths 528–538  
Quadt A von: U–Pb and Sm–Nd geochronology of mafic and ultramafic rocks from the central part of the Tauern Window (eastern Alps) 57–67  
Ripley EM → Lira R 370–386  
Rosing MT → Blichert-Toft J 154–172  
Ruiz J → Duffield WA 192–210  
Russ-Nabelek C → Nabelek PI 173–191  
Ryan CG → Griffin WL 1–15  
Sandiford M → Dymoke P 121–132  
Sawatari H → Shimizu H 242–252

- Schmädicke E, Okrusch M, Schmidt W: Eclogite-facies rocks in the Saxonian Erzgebirge, Germany: high pressure metamorphism under contrasting  $P-T$  conditions 226-241
- Schmidt MW: Amphibole composition in tonalite as a function of pressure: an experimental calibration of the Al-in-hornblende barometer 304-310
- Schmidt W → Schmädicke E 226-241
- Schulze DJ → Viljoen KS 133-138
- Shi P: Basalt evolution at low pressure: implications from an experimental study in the system CaO-FeO-MgO-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> 139-153
- Shieh Y-N → Young ED 68-86
- Shimizu H, Sawatari H, Kawata Y, Dunkley PN, Masuda A: Ce and Nd isotope geochemistry on island arc volcanic rocks with negative Ce anomaly: existence of sources with concave REE patterns in the mantle beneath the Solomon and Bonin island arcs 242-252
- Singer BS, Myers JD, Frost CD: Mid-Pleistocene lavas from the Seguan volcanic center, central Aleutian arc: closed-system fractional crystallization of a basalt to rhyodacite eruptive suite 87-112
- Sinton CW → Coish RA 500-514
- Skjerlie KP: Petrogenesis and significance of late Caledonian granitoid magmatism in western Norway 473-487
- Stille P → Blanckenburg F von 33-45
- Stosch H-G → McDonough WF 321-328
- Sutter JF → Cosca MA 211-225
- Swash PM → Viljoen KS 133-138
- Takasu A → Dallmeyer RD 515-527
- Tommasini S, Poli G: Petrology of the late-Carboniferous Punta Falcone gabbroic complex, northern Sardinia, Italy 16-32
- Turbeville BN: Relationships between chamber margin accumulates and pore liquids: evidence from arrested in situ processes in ejecta, Latera caldera, Italy 429-441
- Viljoen KS, Swash PM, Otter ML, Schulze DJ, Lawless PJ: Diamondiferous garnet harzburgites from the Finsch kimberlite, Northern Cape, South Africa 133-138
- Ware NG → McDonough WF 321-328
- Watkins RT → Ie Roex AP 253-268
- Wooden JL → Young ED 68-86
- Worden RH, Droop GTR, Champness PE: The influence of crystallography and kinetics on phengite break-down reactions in a low-pressure metamorphic aureole 329-345
- Wu T-W → Jolly WT 411-428
- Young ED, Wooden JL, Shieh Y-N, Farber D: Geochemical evolution of Jurassic diorites from the Bristol Lake region, California, USA, and the role of assimilation 68-86

*Indexed in Current Contents/  
Abstracted in Mineralogical Abstracts*

